

III. THE CIRCULATION/SEVIC HIGHWAY ELEMENT

A. AUTHORITY

CIRCULATION ELEMENT OF THE GENERAL PLAN

Government Code Section 65302 defines a Circulation Element in all City and County General Plans, as follows:

"A circulation element consisting of the general location and nature of existing and proposed major thoroughfares, transportation routes, terminals, and other local public utilities and facilities, all correlated with the Land Use Element of the Plan."

B. DEFINITION AND ANALYSIS

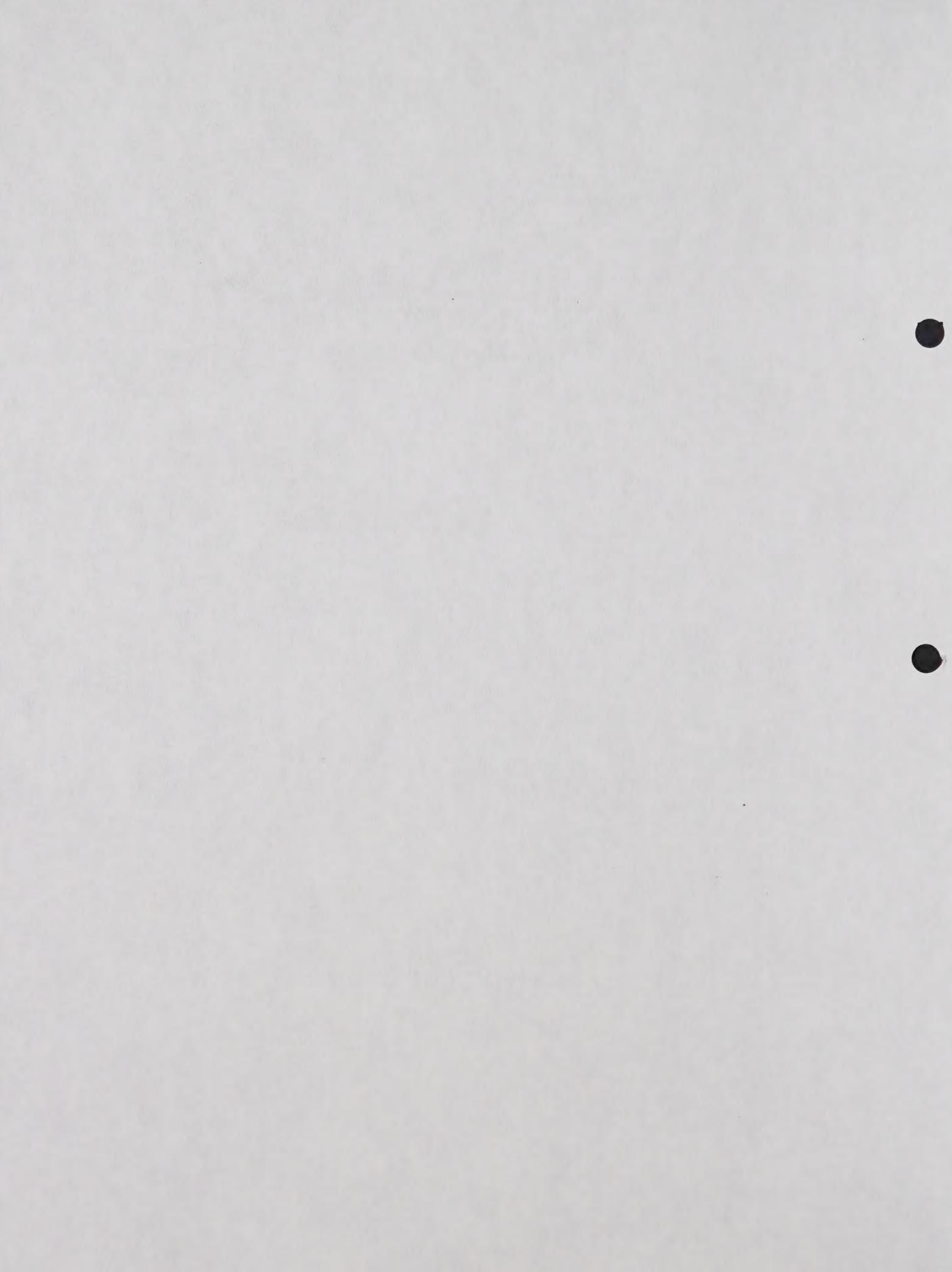
1. Introduction

The Circulation and Service Highway Element is concerned with: 1) the movement of people and commodities (including energy) through the City; and, 2) local planning for within highways in the City.

The Land Use Element and the Circulation Element of the General Plan must work together so that the land use impacts and requirements of the land/transportation system compatibility are coordinated. Impacts of economic which will be generated by future development are the basis for the planned circulation system improvements in the Circulation Element.

This section will summarize and analyze background data relating to:

- a. Traffic counts
- b. Demographic data
- c. Public transit
- d. Existing and proposed facilities
- e. Future proposed facilities
- f. Current transportation facilities
- g. Traffic study areas
- h. Traffic mitigation projects



III. THE CIRCULATION/SCENIC HIGHWAY ELEMENT

A. AUTHORITY

1. Circulation

Government Code Section 65302 (b) requires a Circulation Element in all City and County General Plans, as follows:

"A circulation element consisting of the general location and extent of existing and proposed major thoroughfares, transportation routes, terminals, and other local public utilities and facilities, all correlated with the Land Use Element of the Plan."

B. RESEARCH AND ANALYSIS

1. Introduction

The Circulation and Scenic Highway Element is concerned with: 1) the movement of people and commodities (including energy) through the City; and, 2) local planning for scenic highways in the City.

The Land Use Element and the Circulation Element of the General Plan must work together so that the land use impacts and needs and the circulations/transportation system capability are coordinated. Projections of the traffic which will be generated by future development are the basis for the planned circulation system improvements in the Circulation Element.

This section will summarize and analyze background data relating to:

- a. Traffic circulation
- b. Scenic routes
- c. Public transit
- d. ~~Riding and hiking trails~~
- e. ~~Transmission lines and fuel lines~~
- f. Other transportation facilities
- g. Traffic study areas
- h. Traffic mitigation project

2. Traffic Circulation

a. Area-wide Circulation

The City is served by two major freeways, Interstate Route 80 and State Highway 4. I-80 provides access to the San Francisco Bay Area, Sacramento and to the western states. Route 4 connects I-80 with the Sacramento delta and central Contra Costa County. See Figure III.1. ~~See Figures 10 and 11.~~

I-80 is presently six lanes and the Department of Transportation is considering an expansion to an eight-lane facility with possibly a future expansion of Bay Area Rapid Transit (BART) system paralleling I-80 in the Hercules area. Route 4 is partly a freeway and partly a two-lane highway between I-80 and Martinez, and is planned for expansion to a six-lane freeway. Several existing ramp connections to these two freeways serve the City via Willow Avenue, San Pablo Avenue, and Bayberry. San Pablo Avenue provides a connection to communities north and south of Hercules and serves as a by-pass for I-80 when freeway traffic is congested.

b. Local Circulation

In September, 1994, the General Plan Circulation Element - Transportation Technical Report was prepared by DKS Associates. This study measured the existing traffic conditions throughout the City and projected traffic conditions which can be expected by the year 2010.

CITY WIDE TRAFFIC STUDY

In March, 1987, a "City wide Traffic Study" was prepared by JHK and Associates, consulting traffic engineers. This study measured the existing traffic conditions throughout the City and projected traffic conditions which can be expected by the year 2,000 or thereafter.

Land Use Assumptions

The focus of the study is the peak hour condition at full "Build-out" (i.e. development) of land both within the City and its sphere of influence to the east along Route 4. Travel demand on the transportation network was estimated using the West County Travel Demand Model. For this study, the year 2010 land use database was refined to reflect changes in plans since 1990 (see Table III.1 and Figure III.2). Details of the revised household and

employment projections used in the land use file are provided in Table A-2 of the separately bound Transportation Technical Report Appendices document.

Network changes anticipated to occur by buildout were also incorporated into the model (see Table III.2 and Figure III.3). Local connections to projects were also incorporated into the model, based on assumptions developed in conjunction with City staff and information contained in adopted planning documents.

Figure III.

Urban areas will be linked to job-producing opportunities through a regional transportation network that allows and encourages movement between the job centers and the surrounding areas.

Transportation infrastructure should be designed to reflect the needs of the community and its growth. A transportation system that emphasizes mobility and accessibility, but also emphasizes quality of life and safety, is important to maintain a healthy, livable, and attractive community. The following sections will discuss the various components of the transportation system and their impact on the community.

Transportation infrastructure is a critical component of a community's economy and quality of life. It provides the means for people to travel to work, to shop, to visit friends and family, and to participate in recreational activities. A well-designed transportation system can help to attract new businesses and residents to the area, while a poorly designed system can lead to economic decline and social isolation.

Transportation infrastructure is also important for emergency services, such as fire departments, police departments, and medical facilities. A well-designed transportation system can help to ensure that emergency services can respond quickly and effectively to any emergency.

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~~Table III.1~~

Circulation Element Of The General Plan September 8, 1995

Table III.2

Fig W3

The "City Wide Traffic Study" breaks the City into traffic study zones. These traffic zones are shown in Figures 9 and 9A. The projections of traffic to be generated at "Build out" are based on land use assumptions as summarized in Table 7A.

Table 7B is a detailed breakdown of the land uses in each traffic zone. This includes both existing (1986) development and the future development that is expected to occur by the year 2000 or thereafter. The data in Tables 7A and 7B are taken from the land use designation of the present (August, 1988) General Plan and the Draft Hercules Properties/Gelsar Specific Plan (April 1988). Some of the data from the General Plan has been modified to reflect actual approvals.

TABLE 7A LAND USE ASSUMPTIONS

Land Use Group	Measure	Additional			Total At Buildout
		Existing 1986	Sphere Of Influence	City Limit	
Residential					
Hotel					
Retail Commercial					
Office					
Industrial Park					
Lt. Industrial					
Heavy Industrial					
Public Offices					
Schools					

~~In the 1987 Study, trip generation rates from the third edition of Trip Generation published by the Institute of Transportation Engineers were used. In 1988, the fourth edition of this book was published with revised trip generation rates. JHK Associates reran the model using the revised trip generation rates, and re-analyzed the most heavily traveled intersections in the City. While the projected volume/capacity ratios changed slightly, JHK confirmed that the improvements identified in the 1987 Study will be needed to accommodate full build out traffic at Level of Service D.~~

3. Transportation Improvements

Identifying the transportation improvements which must be constructed in order to achieve the City's General Plan Policy of maintaining a Level of Service D or better for peak hour traffic operating conditions is a three-step process.

First, the quantified land uses are combined with the appropriate trip generation rates in the traffic model to determine the number of peak hour trips which would be generated on roadways and at specific intersections. Secondly, the traffic model is then used to determine the Level of Service of traffic operation at intersections in the City were developed to full "Build-out" without any improvements to the circulation/transportation system. Third, the model is used to identify which specific transportation improvements need to be constructed in order to achieve a Level of Service D or better in the City.

There are several transportation improvements included in the City's Capital Improvement Program (CIP) and the Highway 4 West and San Pablo Avenue Circulation Improvement Plan. Table III.3 lists each project that has committed funding or is reasonably assured of being completed. The location of these

projects is shown on Figure III.4.

Projected levels of service for major intersections in 2010 are shown in Table III.4. Two intersections would operate below an acceptable level during both the weekday A.M. and P.M. peak hours: San Pablo Avenue/Sycamore Avenue and San Pablo Avenue/John Muir Parkway. Both of these intersections are projected to operate at LOS F in the future. Because these two intersections are adjacent to each other, they share a common congested segment of San Pablo Avenue. This segment of San Pablo Avenue, between SR 4 and Sycamore Avenue and further south to the city limit is the only deficiency identified for Year 2010 conditions.

The recommended circulation plan should include all of the committed improvements discussed in Section 3, plus measures to alleviate remaining deficient conditions anticipated at buildout of the City of Hercules. As noted in Section 3, the main deficiency identified in Hercules is the section of San Pablo Avenue between Sycamore Avenue and the south City limit.

San Pablo Avenue is designated as a regional route in the West Contra County Action Plan for Routes Of Regional Significance. As such, it is not subject to the same level of service standards as other "basic routes." Rather, it is subject to a traffic service objective, which is level of service E. The congestion on this section of San Pablo Avenue is due, in large measure, to diversion of traffic from I-80. Analysis of the travel demand modeling indicates that about one-third of the morning peak hour traffic on this section of San Pablo Avenue would use I-80 instead if there was adequate capacity.

Table III.3

Fig III.4

Table III.4

The West County Action Plan cites several potential measures for improving congestion on San Pablo Avenue. The City of Hercules has already programmed a signal coordination project for the four traffic signals between Willow Avenue/Parker Avenue and Hercules Avenue. While these projects are important with respect to improving traffic flow in Hercules, they would not have a large impact on San Pablo Avenue traffic operations between Sycamore Avenue and SR 4/John Muir Parkway. The Action Plan cites the following additional measures:

III.1 Responsibility Of WCCTAC Jurisdictions

With an objective to maintain LOS E or better, these measures should be implemented:

- monitor level of service on San Pablo Avenue
- encourage completion of Richmond Parkway
- discourage through traffic on I-80 from diverting onto to local streets (through improvements to I-80 such as the HOV lane construction by Caltrans scheduled to begin in 1995, and by requesting CCTA to develop, in conjunction with Caltrans and Solano County, a Traffic Operation System Management plan For I-80 that will regulate the flow of traffic on I-80 to respect the freeway's system's constraints and bottlenecks.)
- encourage I-80 traffic to stay on freeway and minimize early exits
- adopt design standards for new development to minimize turning movements on and off of San Pablo Avenue (try to minimize the number of access points on and off of San Pablo Avenue)
- synchronize signal timing throughout the San Pablo Avenue corridor
- emphasize HOV use of I-80 and encourage transit use in the corridor
- encourage diverted traffic to return to I-80 on the next downstream feeder road through improved signage
- clearly identify feeder roads for diverted motorists to return to I-80
- support WestCAT's efforts to assess need for improved transit service along San Pablo
- support extension of bicycle lanes to encourage more usage

III.2 Responsibility Of City Of Hercules

With an objective to maintain LOS E or better, these measure should be implemented:

- explore feasibility of construction of a second northbound right turn lane between Sycamore Avenue and SR 4 to allow right turns from westbound Sycamore Avenue while preserving the public investment in the City of

Hercules transit transfer station (the new park and ride lot at parcel 10)

- promoting commuter rail and a train station in the city to intercept through travelers on I-80.

Of the measures listed above, only the first measure cited particularly for the City of Hercules would cause measurable changes in service levels at the San Pablo Avenue/Sycamore Avenue and San Pablo Avenue/John Muir Parkway intersections. The additional northbound right turn lane would not improve the service levels at these intersections to LOS E, however. Even with major geometric changes at these two intersections, the service levels would still be projected to operate at LOS F, with a volume-to-capacity (V/C) ratio of just over 1.00. The geometric improvements would involve making San Pablo Avenue a six lane arterial between Sycamore Avenue and SR 4/John Muir Parkway and adding several turn lanes to accommodate major turn movements. The turn lane additions that would have to be considered, in addition to widening San Pablo Avenue, would create three westbound to southbound left turn lanes and a second southbound to eastbound left turn lane at John Muir Parkway. At Sycamore Avenue, a third southbound to eastbound left turn lane and a third westbound to northbound right turn lane would be needed to get the service level close to LOS E.

The City would need to consider not only the construction cost of these improvement but also the right-of-way costs and visual impacts. There is currently a median of varying width in the middle of San Pablo Avenue between Sycamore Avenue and John Muir Parkway. The median width varies due to the left turn pockets at the intersections. A striped bike lane and landscaping abut San Pablo Avenue along its western frontage (adjacent to the southbound lanes). Along the eastern side of San Pablo Avenue between Sycamore Avenue and John Muir Parkway, there is a striped bike lane and a sidewalk adjacent to the future park and ride lot.

Intersections with triple left turn lanes are very unusual and generally indicate the need for an alternative approach to improvements. Approaches to significant over-capacity conditions that are typically used include construction of new parallel facilities or the use of grade separations to eliminate conflicting turning movements. It is also common to look for alternative transportation modes to take up the excess demand.

III.3 Potential Circulation Improvements

Hercules has several options relating to how to address the future deficiency on San

Pablo Avenue: The first would be to accommodate the heavy travel "desire line" in the I-80 corridor through additional access and capacity enhancements on San Pablo Avenue. Some or all of the following circulation improvements could help alleviate some of the future congestion identified for San Pablo Avenue:

- a. **I-80/SR 4 Interchange Improvements.** Due to the existing ramp configurations, San Pablo Avenue between John Muir Parkway and Sycamore Avenue acts as part of the I-80/SR 4 interchange. Providing direct connections from the freeways to San Pablo Avenue with potential flyovers of the critical intersections would take some of these movements out of critical intersections.
- b. **Increase Capacity on San Pablo Avenue.** Widen San Pablo Avenue from four lanes to six lanes between John Muir Parkway and the southern Hercules City limit.
- c. **Grade Separations.** Grade separate the intersections of San Pablo Avenue and John Muir Parkway and San Pablo Avenue and Sycamore Avenue. The grade separations would allow through traffic on San Pablo Avenue to not interfere with turning movements at these intersections. Much of the through traffic on San Pablo Avenue is traveling through the City to and from points outside of Hercules. The turning movements at these intersections involves motorists traveling to and from points within Hercules.

These actions would provide additional capacity, and would encourage use of San Pablo Avenue as a bypass route to the freeway. Although widening of San Pablo Avenue may be possible in Hercules, it would be more troublesome in Pinole. The regional consensus on I-80 corridor capacity issues that developed from the West County Action Plan is that diversion of traffic away from I-80 onto San Pablo Avenue should be discouraged, rather than encouraged. The capacity enhancements discussed above would be counterproductive to this regional consensus.

The second option is to continue to work with other West County jurisdictions and regional transit agencies to develop alternatives to single-occupant automobile use in the I-80 corridor. This would include pursuing BART extensions in West County, commuter rail service to Solano County, and improved bus connections. The blueprint for this approach is provided in the West County Action Plan. It should be recognized that this approach is not likely to result in meeting the traffic service objective on San Pablo Avenue (level-of-service E) if the land development in western Contra Costa County, Solano County and the remainder of the Bay Area occurs generally as anticipated in the West County Travel Demand Model.

Considering the options, we suggest the "transportation alternatives" approach as most appropriate for Hercules.

4. Scenic Routes

The two scenic routes within the City of Hercules are:

Road Name
and Category

Termini

Length

Based on the "City wide Traffic Study" a list of needed transportation improvements were prepared. Project costs, contributions, shortfalls and a priority based sequence of construction for these Transportation Improvement projects are shown in Table 7C. The locations of the projects are shown on Figures 9 and 9A. Projected Levels of Service for major intersections at "Build out" conditions both "without improvements" and "with improvements" are shown in Table 7D.

TABLE 7D - LEVELS OF SERVICE*

<u>Intersection</u>	<u>Without Improvement</u>	<u>With Improvement</u>	<u>With Improvements and TSM Program</u>
I-80 SB Ramp/Willow	D/E	B/B	B/B
I-80 NB Ramp/Willow	B/F	A/C	A/C
San Pablo/John Muir	F/F	D/D	D/D
San Pablo/Sycamore	F/F	D/D	D/D
San Pablo/Hercules	B/F	B/D	A/D
Berryberry/Sycamore	F/F	D/C	D/C
Creekside/Sycamore	A/F	A/D	A/D
Turquoise/Sycamore	A/E	A/B	A/B
Refugio Valley/Sycamore	A/B	A/B	A/B

*In each column, AM Level of Service is shown first, followed by PM Level of Service.

Critical Assumption: Construction of Route 4/Willow Area Interchange.

Perhaps the key impact assumption in modeling the City Wide Traffic Study is that an interchange will be built in the Route 4/Willow area (Project "E"). This interchange has been an integral part of the City's General Plan since the early 1970's. The City has over the years met with Caltrans on potential design and how to implement this project. Implementation of this project could experience difficulties with Caltrans' requirement of one mile spacing between interchanges and with that of funding.

~~Project "E": is the Traffic Mitigation Summary provides for two phase of construction. Phase 2 would extend Palm Avenue to the north and require an overpass across Route 4 which would provide access to Route 4 westbound, and to Willow Avenue. As part of this phase the Bayberry intersection (Phase 1) would be eliminated and would be reconstructed to provide an eastbound connection to Route 4. This project alone will not satisfy the needs of the traffic model in achieving a Level of Service D and would provide no advantage unless the overpass were part of the future interchange.~~

~~Possible Scenarios to Maintain LOS D if Interchange is Not Constructed.~~

~~If no interchange or overpass were built on Route 4 west of the railroad there would be a need to modify some of the assumed development in order to maintain a Level of Service "D".~~

~~Required modifications under various scenarios are as follows:~~

1. ~~With no Transportation System Management (TSM) and no northbound I-80 Bayberry on ramp~~ Under this condition, the following modifications to the land use would be necessary:
 - Reduction of 490,000 square feet (or 30%) of the office and industrial developments in the Hercules Properties/Gelsar Inc. Specific Plan area located west of I-80 and south of the already approved Bio Rad/North Shore Business Park Developments.
 - Substitute 340,000 square feet of office and retail commercial developments east of I-80 with 250 units of residential development. This change would impact all or part of the 25 acre site east of the new City Hall and possible other developments.
 - Substitute 250,000 square feet of industrial development along Bayberry Avenue with uses such as mini warehouse or churches which generate very few peak hour trips.
2. ~~No TSM program but with the Bayberry I-80 on ramp~~ Under this condition, the first two items of change as described above would be required. However, the industrial developments along Bayberry can be allowed to proceed.
3. ~~With TSM but without the Bayberry on ramp~~ Under this condition, a reduction of 164,000 square feet (10%) in office and industrial developments in the Hercules Properties/Gelsar Inc.

~~Specific Plan area and the last two items of change, as described under Scenario 1, would be required.~~

4. ~~With TSM and with the Bayberry I-80 on ramp~~ Under this condition, the industrial development along Bayberry can be allowed to proceed but other changes, described under Scenario 3, would be required. Thus, the modifications to land use would include reduction of 164,000 square feet in office and industrial developments west of I-80 and the substitution of 340,000 square feet of office and retail commercial developments east of I-80 with 250 units of residential developments.

~~Based on the City Wide Traffic Study, the City has concluded that an improved Route 4 interchange and additional ramps on I-80 at Willow Avenue are needed taking into consideration all of the following factors:~~

- 1) ~~Through freeway traffic and freeway to freeway movements.~~
- 2) ~~Service to the land uses proposed in the City's General Plan.~~
- 3) ~~Traffic circulation within the City.~~
- 4) ~~Distribution of traffic on City streets and freeway ramps to reduce undue congestion.~~
- 5) ~~Railroad crossings and other physical constraints to street design.~~
- 6) ~~Traffic signal operations.~~
- 7) ~~Traffic channelization and informational signs.~~

3. Scenic Routes

~~The State of California adopted a state scenic program in 1963 to designate "official state scenic highways." In Contra Costa County, Routes 680, 24 and 239 are designated as scenic highways. However, there are no officially designated scenic highways in the State Master Plan within or in the vicinity of the City of Hercules.~~

~~The Contra Costa County Scenic Routes Element shows routes which contain the scenic qualities necessary to meet their goals.~~

~~Two such scenic routes with segments in the City of Hercules include:~~

<u>Road Name and Category</u>	<u>Termini</u>	<u>Length to be Included</u>
State Route 4 Scenic Freeway	Interstate 80 to State Route 84	33.4 miles
San Pablo Avenue Scenic Thoroughfare	Pinole Valley Road to Interstate 80 at Crockett	6.6 miles

~~Both of these segments have been designated as City Scenic Routes (see Figure III.1). The segments of these scenic routes within the City were included for coordination purposes only. It is understood that the City's standards and criteria would be applicable to City streets.~~

~~Both of the segments of proposed County Scenic Routes in the City have been designated as City Scenic Routes (see Figure 10). San Pablo Avenue through the City of Hercules is presently a scenic corridor of relatively high environmental value and should be preserved and enhanced as the City grows and develops.~~

~~Although State Route 4 does not presently presents have an outstanding scenic quality qualities along its corridor within the City, other nearby portions of Route 4 are quite scenic (such as i.e. the Franklin Canyon Golf Course). Since Route 4 is an important window to the City, the general movement of the view from this facility is a desirable environmental goal. The City should be particularly interested in the design configuration and quality of landscaping in connection with future construction to freeway standards by the State.~~

5. 4. Transit

a. Existing Service

The BART system connects the City of Richmond with Fremont to the south, Concord to the east and San Francisco and Daly City across the Bay and to the south. This system is primarily a fixed rail commuter service from outlying communities to major employment centers in the Bay Region. The most accessible BART station for Hercules is the El Cerrito Del Norte station, at Cutting Boulevard and I-80 in Richmond, nine miles south of Hercules.

Public Transportation within Hercules is provided by two agencies: Western Contra Costa County Transit Authority (WestCAT) provides the local service

while the Bay Area Rapid Transit (BART) is the regional carrier. Their services are as follows:

Bus service in Hercules is currently served by AC Transit and WestCAT, as well as BART Express Bus (see Figure III.5). AC Transit Route 74 runs along San Pablo Avenue between Crockett and the Richmond BART station. It operates weekdays on one-hour headways, with a stop located at the WestCAT Transit Transfer Station on John Muir Parkway just west of San Pablo Avenue. AC Transit Line 30Z travels along SR 4 from Martinez to Hercules, stopping at the WestCAT Transfer Terminal, and continuing on to the Richmond BART station. Line 30Z operates weekdays on one-hour headways.

WestCAT bus service is available throughout Hercules. Four lines operate on weekdays, and each line travels between the WestCAT Transfer Terminal and Sycamore Avenue. Line 10 runs along Turquoise Avenue, Pheasant and Sparrow. Line 12 travels along Sycamore Avenue, Redwood, Violet and Lupine. Line 13 covers Refugio Valley Road as well as Carson, Grissom and Coronado. Line 14 runs along Pheasant, Sparrow, Falcon and Refugio Valley Road west of Redwood. Each line operates on half-hour headways between 6:00 A.M. and 8:00 P.M.

WestCAT also provides door to door Dial-A-Ride service for senior and disabled passengers in portions Hercules and Rodeo not otherwise served by WestCAT. In Hercules, the Dial-A-Ride service area extends east of San Pablo Avenue and north of SR 4.

BART Express Bus Line J connects several points in northern and western Hercules with the El Cerrito Del Norte BART station. In Hercules, passengers can access the express bus at the North Shore Business Park and the Willow Avenue/I-80 Park & Ride lots. BART Express Line J operates on 30-minute headways during the week, and 40 minute headways on Saturdays and Sundays.

Park & Ride lots currently exist at the I-80/Willow Ave ramps intersections. Approximately 99 spaces are available for commuters in these lots. Connecting service to BART Express Bus Line J is available at these lots. Another Park & Ride lot, scheduled to open in the latter part of 1994, will be located on the east side of San Pablo Avenue between Sycamore Avenue and SR 4. The San Pablo Avenue Park & Ride lot will contain about 200 spaces and will also provide parking for commuters using AC Transit Line 74 and BART Express Bus Line J.

Figure III.5

1) ~~Western Contra Costa County Transit Authority (WestCAT)~~

~~Fixed Routes:~~ ~~Route 12 serves the neighborhoods along Redwood and Lupine Roads as well as Creekside Shopping Center, Hercules Industrial Park and downtown Pinole.~~

~~Route 14 serves the neighborhoods along Pheasant Drive, Falcon Way, and Refugio Valley Road. It also serves Creekside Shopping Center and Refugio Valley Park.~~

~~Route 70A is operated, under contract to WestCAT, by AC Transit. The route operates on San Pablo Avenue from Crockett to Hilltop Mall. It also serves Contra Costa College, Brookside Hospital, and connections to other AC Transit routes.~~

~~Dial A Ride:~~ ~~Dial A Ride is a door to door service. It is available to all Hercules residents who live east of Highway 4 and to all elderly (60 years and older) and disabled residents.~~

2) ~~Bay Area Rapid Transit District (BART): BART operates the "J" line Express Bus Service which provides direct connections to the El Cerrito Del Norte BART station. The Hercules stop is located on San Pablo Avenue just west of Sycamore Avenue.~~

b. ~~Transit Potentials~~

1) ~~Transportation System Management (TSM).~~ ~~There is a need to implement an active TSM program to enlist the major employers or groups of employees to create car/van pool programs and flexible work hours. In conjunction, the TSM participants should encourage the transit services to work for more routes and shorten headways.~~

~~The City Wide Traffic Study utilized in modeling a 10% reduction of work trips in zones with commercial/industrial developments and 4% reduction in work trips by residents commuting to the south. While this TSM element does not significantly modify Level of Service, every effort should be made to implement it.~~

2) ~~Development of a "Park and Ride" facility to serve as an interface point for all public transportation.~~

5. Riding and Hiking Trails

~~A connecting system of bicycle and hiking trails are shown on the Open Space and Conservation Plan (see Figures 14 and 15). The trail system will be separated from streets and highways, where practical, connecting open spaces and activity areas in the community and linking with regional trails. Trails are classified as:~~

- a. ~~Regional riding trails~~
- b. ~~Regional hiking trails~~
- c. ~~Local trails~~

6. Transmission Lines and Pipelines

~~There are a number of existing and proposed overhead and underground facilities in the City. Figures 12 and 13 show the major facilities in their recommended locations. The facilities include:~~

- a. ~~Overhead power transmission lines (60KV and 115 KV)~~
- b. ~~Water mains and reservoirs~~
- c. ~~Sewer trunk and treatment plan~~
- d. ~~Fuel lines~~
- e. ~~Gas lines~~

7. Other Transportation Facilities

The City is traversed by two railroad lines; the Southern Pacific and the Atcheson-Topeka and Santa Fe, which is a main line. At present there is no direct water or air service to the City. The deep water channel is several miles from the shoreline at Hercules. The City is conveniently located to two international airports - Oakland and San Francisco.

C. POLICIES AND PROPOSALS

1. Objectives

The basic objectives of the Circulation and Scenic Highway Element are to:

- 1) Provide for the movement of people and commodities in the City, and
- 2) Plan for the preservation and enhancement of visual qualities as viewed from designated scenic routes. Subgoals of these basic objectives are to:

- a. Established a long-term program for the construction of streets and preservation of future rights-of-way based on traffic projections.
- b. Coordinate the street system with land use and other elements of the General Plan.
- c. Unify the City with a functional internal street system of arterials, collectors, and local streets.
- d. Provide adequate access from the freeways to the surface street system.
- e. Coordinate the City's street system with adjoining city, county and state facilities.
- f. Maintain acceptable local circulation operating conditions on arterial streets/intersections and on local collector streets.
- g. Minimize through traffic in residential neighborhoods.
- h. Promote public transit service within the City and area.
- i. Provide a comprehensive system of riding and hiking trails.
- j. Provide for needed transmission facilities in a manner compatible with other elements of the General Plan.

2. Policies

- a. The policy on traffic level of service reflects the "traffic service objectives" set out in the West County Action Plan. The City has adopted a Growth Management Element to comply with Contra Costa County Measure C (1988). This included adoption of level of service standards on "basic routes" depending on the location of the route: CBD (central business district), urban, suburban, semi-rural and rural.

As also noted in the Growth Management Element of the General Plan, the following are the traffic service standards for Basic Routes (Local Streets) in Hercules:

LOS "High" D to "Low" E (maximum v/c ratio is 0.94)

= Sycamore Avenue (from Bayberry to San Pablo Avenue)

- = Bayberry (from I-80 ramps to Sycamore)

LOS "High" D - (maximum v/c ratio is 0.89)

- = Sycamore Avenue (SR-4 - Bayberry)
- = Refugio Valley Road (Sycamore - Redwood/Falcon)
- = Alfred Nobel Drive
- = Linus Pauling Drive
- = James Watson Drive
- = John Muir Parkway

LOS "Low" D - (maximum v/c ratio is 0.84)

- = All other Basic Routes (that is, except Routes of Regional Significance).

Measure C calls for "routes of regional significance" to have a separate "traffic service objective" set cooperatively by all the jurisdictions of western Contra Costa County. Routes of regional significance in Hercules are: I-80, SR 4 and San Pablo Avenue. The Circulation Draft of the West County was published on July 29, 1994, and recommends a traffic service objective of LOS E at signalized intersections on San Pablo Avenue.

For health, safety and general welfare, it is the City's policy to provide adequate levels of traffic service throughout the City. Level of Service D or better is the city wide standard for traffic operating conditions during peak hours on arterial residential streets and intersections. Level of Service D for the commercial/industrial development is acceptable under the following conditions:

- 1) striving for off-peak uses
- 2) producing Living Wage jobs
- 3) generating City Revenue and/or
- 4) proposing development that is otherwise highly desirable community-wide.

- a. Neighborhood design should discourage through traffic on local streets.
- b. Residential streets will be designed in relation to the needed capacity and the adjoining housing patterns.
- c. Proposed elements within view of designated scenic routes in the City

should be reviewed in terms of their visual impact.

- e. The City should actively participate in cooperative efforts to provide effective public transit to the City and adjacent communities, including promoting commuter rail and a train station in the City to intercept through travelers on I-80.

~~The City should actively participate in cooperative efforts to provide effective public transit to the City and adjacent communities.~~

- f. The City should promote the establishment of riding and hiking trails throughout the community and coordinate with other agencies planning trail systems in the area and region.
- g. Major transmission and fuel lines should be reviewed to ensure compatibility with affected General Plan elements.

3. Proposals and Standards

- a. Traffic Circulation

The Circulation Plan (Figure III.6) shows three classifications of traffic facilities:

~~The Circulation Plan (Figures 10 and 11) shows three classifications of traffic facilities: freeways, arterials and local collector streets as well as freeway interchanges, railroads, scenic routes, and future highways.~~

1) Freeways

Freeways are routes designed to carry heavy traffic volumes over long distances. Access is controlled, crossings are grade separated and lanes in opposite directions are separated by medians.

Interstate 80 is a six-lane freeway proposed for widening to eight lanes and State Route 4 is partly a freeway and is planned for expansion to a six-lane freeway. Figure III.6 shows the proposed interchanges of these freeways with arterial city streets.

Figure 9 shows the proposed interchanges of these freeways with arterial city streets.

Figure III.6

2) Arterial Streets

Arterial streets provide the principal traffic circulation system within the community. They also provide the transition between collector and local streets and the freeway system. Arterials are high volume streets having two or more moving lanes and a parking lane in each direction. They sometimes have median strips and turn lanes and usually have traffic signals at major intersections. The arterial streets in Hercules are San Pablo Avenue, Willow Avenue, Sycamore Avenue and Refugio Valley Road.

3) Local Collector Streets

Local collector streets provide the transition between arterial streets and land uses within the community. The configuration of these streets will depend on the amount of traffic they will carry and the manner in which access is provided to adjoining land uses.

b. Scenic Routes

San Pablo Avenue and State Route 4 are designated as scenic routes in the City (see Figure III.6).

~~San Pablo Avenue and State Route 4 are designated as scenic routes in the City (see Figures 10 and 11). These designations are compatible with the county scenic routes proposed in Contra Costa County's preliminary draft of their Scenic Routes Element.~~

c. Transit

Convenient and efficient public transit service in the City should be provided to offer an attractive alternative to the automobile.

~~Potentials for transit service to the future residents of the City include:~~

- ~~— Create a transportation system management (TSM) program.~~
- ~~— Development of a "Park and Ride" facility to serve as an interface point for all public transportation.~~

d. Riding and Hiking Trails

~~Three types of riding and hiking trails shown on the Open Space and Conservation Plan include:~~

- ~~1) A regional riding trail connecting the county wide trail system.~~
- ~~2) Regional hiking trails which are in general conformity to the proposed county hiking trail plan.~~
- ~~3) Local hiking trails connecting open spaces and activity areas throughout the City.~~

~~A more detailed description of the trail system can be found in the Open Space and Conservation Element.~~

~~e. Transmission Lines and Pipelines~~

~~The existing locations for major transmission lines and pipelines are shown in Figures 12 and 13~~

~~The existing locations for major transmission lines and pipelines are shown in Figures 12 and 13~~

D. IMPLEMENTATION

1. Establishment of planning liaison with the Federal, state and regional agencies concerned with transportation to ensure the coordination of their projects with the policies of the circulation element.
2. Designation of a local select system of arterial and collector streets to be eligible for State and Highway Trust Fund monies.
3. Investigation of the use of grant funds from regional, state and Federal agencies such as the Department of Transportation, and the Department of Housing and Urban Development for the provision of specialized circulation facilities such as mass transit, hiking, biking and riding trails, and scenic highways.
4. Designation of rights-of-way in advance of development and encouragement and requirement of dedication of streets, paths and trails as part of the land development process.
5. Establishment of special assessment districts for street improvements, construction of bridges, provision of public transit or parking, etc.

6. Participation in local and regional Transportation System Management (TSM) programs, such as the City's adopted Transportation Demand Management (TDM) Program, which was developed by the West Contra Costa County Transportation Advisory Committee (WCCTAC) and includes guidelines for trip reduction measures.
7. Establish a traffic mitigation fee to be paid by all remaining development projects to offset the needed improvements outlined in the General Plan Circulation Element Transportation Technical Report.

Create a Transportation Management System (TSM) program.

7. Establish a traffic mitigation fee to be paid by all remaining development projects to offset the needed improvements outlined in the City-Wide Traffic Study.
8. Acquisition of rights-of-way and easements and directly construct improvements using local sources of funds.
9. Review of development proposals in terms of circulation and scenic route policies and proposals.
10. Support area-wide cooperative efforts to expand public transit service to the City and surrounding areas.
~~Support area-wide cooperative efforts to expand public transit service to the City and surrounding areas.~~
11. Encourage pedestrian and bicycle travel for home-to-work and home-to-local-shopping trips through the provision of pathways and bicycle storage.
12. As part of road construction projects, enforce dust control measures (such as watering graded areas daily) and require that contractors be responsible for the immediate clean-up of any materials spilled on city streets as a result of grading, construction or hauling operations.
13. Plan for construction of the road improvement projects identified in this Element through the City's Capital Improvement Program, and schedule each project according to current/projected congestion at the site of the improvement and the financial condition of the Traffic Mitigation Fund.
14. Continue programs that include:

~~Establish a short term (6 months) staff/developer program to develop a TSM program for Hercules that would include:~~

- Trip reduction goals for private and public development;
- Actions to reduce peak hour private vehicle trips (e.g. flex-time, car pools, support of transit);
- Traffic routing controls;
- Further review of alternative funding sources; and,
- An implementing and enforcement ordinance.
- Alternative financing methods for fee payment which do not put the City at risk but ease the developer impact/burden.



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1. Implement a citywide recycling program which includes a citywide recycling ordinance, a citywide recycling facility, and a citywide recycling education and outreach program.

2. Implement a citywide composting program which includes a citywide composting ordinance, a citywide composting facility, and a citywide composting education and outreach program.

3. Create a citywide energy audit program which includes a citywide energy audit ordinance, a citywide energy audit facility, and a citywide energy audit education and outreach program.

4. Implement a citywide water conservation program which includes a citywide water conservation ordinance, a citywide water conservation facility, and a citywide water conservation education and outreach program.

5. Implement a citywide solid waste reduction program which includes a citywide solid waste reduction ordinance, a citywide solid waste reduction facility, and a citywide solid waste reduction education and outreach program.

6. Implement a citywide recycling and composting program which includes a citywide recycling and composting ordinance, a citywide recycling and composting facility, and a citywide recycling and composting education and outreach program.

7. Implement a citywide energy audit and conservation program which includes a citywide energy audit and conservation ordinance, a citywide energy audit and conservation facility, and a citywide energy audit and conservation education and outreach program.

8. Implement a citywide water conservation and reduction program which includes a citywide water conservation and reduction ordinance, a citywide water conservation and reduction facility, and a citywide water conservation and reduction education and outreach program.

9. Implement a citywide solid waste reduction and recycling program which includes a citywide solid waste reduction and recycling ordinance, a citywide solid waste reduction and recycling facility, and a citywide solid waste reduction and recycling education and outreach program.

10. Implement a citywide recycling and composting program which includes a citywide recycling and composting ordinance, a citywide recycling and composting facility, and a citywide recycling and composting education and outreach program.

11. Continue present programs.